USSR

UDC 538.56

SHEVCHENKO, V. V.

"Radiation Losses in Bent Wave Guides for Surface Waves"

Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 5, 1971, pp 768-777

Abstract: An approximate method of calculating radiation losses in bent wave guides for surface waves (a single-conductor metal line coated with a dielectric film, a dielectric wave guide, and so on) is discussed. The method is based on two principles: 1) at least for weakly decelerated waves there is no necessity for conversion to toroidal coordinates since the problem of the bent wave guide can be reduced to the problem of a surface with a directional wave field spatially modulated in the transverse cross section bent around a cylinder; 2) for approximate calculation of the radiation losses in bent systems it is possible to introduce a simple but sufficiently all-purpose calculation rule by which it is sufficient to know only the properties of a surface wave of a rectilinear wave guide. Thus, the method is found to be applicable when calculating the radiation losses of waves with small deceleration in wave guides with small curvature in the case where the running radiation losses are small.

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SHEVCHENKO, V. V., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 5, 1971, pp 768-777

Simplified expressions are presented for calculating the losses of symmetric and asymmetric (dipole) waves in a bent single line and a bent dielectric wave guide. The analysis shows that the radiation losses do not depend on the polarization characteristics of the wave with respect to the bend axis.

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UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 016

TITLE--FUNDAMENTALS OF PHYSICAL CHARTING OF THE LUNAR SURFACE -U-

AUTHOR-(02)-LIPSKIY, L.N., SHEVCHENKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 586-598

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--LUNAR SURFACE, MAPPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605013/D04 STEP NO--UR/0033/70/047/003/0586/0598

CIRC ACCESSION NO--AP0140394

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140394

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF METHODS OF PREPARING PHYSICAL CHARTS GENERALIZING COMPLEX INFORMATION ON LUNAR SURFACE FEATURES. A GENERAL SCHEME FO[illegible] PLOTTING SUCH CHARTS FROM ASTROPHYSICAL DATA AND DIRECT OBSERV[illegible]NS IS OUTLINED. THE APPLICATION OF A COMPLETE CHARTING PROCEDURE TO THE SEA OF TRANQUILITY, INCLUDING THE MAPPING OF INDIVIDUAL PHYSICAL DETAILS, IS DEMONSTRATED. BRIGHTNESS MEASUREMENTS AT SMALL PHASE ANGLES, COLOR DIVIDING IMAGES, AND SMALL SCALE TEMPERATURE CHARACTERISTICS OF THE AREA OBTAINED FROM ASTROPHYSICAL DATA ARE USED IN THE PROCESS. A PRELIMINARY PHYSICAL CHART OF THE AREA SHOWING STRUCTURAL AND GENETIC FEATURES OF ITS INDIVIDUAL SECTIONS IS PREPARED AS A RESULT. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--A PHYSICAL MAPPING OF THE MOON FROM PHOTOMETRIC DATA -U-

AUTHOR--SHEVCHENKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 599-609

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--PHOTOMETRY, MAPPING, LUNAR SURFACE/(U)ZOND 3 INTERSTELLAR PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/005 STEP NO--UR/0033/70/047/003/0599/0609

AIRC ACCESSION NO. 1140395

UNCLASSIFIED

2/2 - 028 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF PROBLEMS OF THE COMPILATION AND INTERPRETATION OF PHOTOMETRIC MAPS OF THE LUNAR SURFACE. A MATERIAL, OBTAINED WITH AIM ZOND-3 FOR PART OF THE REVERSE SIDE OF THE MOON IS USED. ON THE BASIS OF HAPKE'S IMPROVED FORMULA, SYSTEMS OF EQUATION FOR 403 PARTS OF THE SURFACE ARE COMPILED. AS A RESULT OF THE SOLUTION OF THE SYSTEM OF EQUATIONS, MAPS OF THE DISTRIBUTION OF PHOTOMETRIC PARAMETERS ARE COMPILED AND THE TYPOLOGICAL DIVISION INTO DISTRICTS OF THE SURFACE, AN APPORTIONMENT OF DISTRICTS BY TYPES OF PHOTOMETRIC RELIEF, IS CARRIED OUT. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

UDC: 621.372.853.1.09

USSR

MIROVITSKIY, D. I., DUBROVIN, V. F., VZYATYSHEV, V. F., PERSIKOV, M. V., SHEVCHENKO, V. V.

"Cophased Directional Coupling of Electromagnetic Energy in Lines with Delayed Waves"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 37-40

Abstract: The authors describe the principal characteristics of the experimentally observed phenomenon of cophased directional coupling of energy in intersecting and branched dielectric waveguides. Energy transmission is characterized by the following peculiarities in such systems: 1. effective directional coupling is observed even when the section of interaction is of the order of a wavelength or less; 2. the coupled wave is in phase with the wave being propagated in the main channel; 3. effective energy coupling takes place when the coefficients of reflection from the region of line branching are small, which is observed when the wave delays are small in the lines; 4. effective directional energy transmission takes place over an extremely broad frequency range. A clear physical interpretation of the effect is given together with confirming experiments involving investigation of directional radiation of energy from a localized nonhomogeneity in the waveguide, an investigation of

USSR

MIROVITSKIY, D. I., et al., Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 37-40

the amplitude-phase dependence of a signal coupled out into a side branch as a function of the angle of intersection, etc. Some of the areas where the observed effect can be utilized in SHF technology are pointed out. The authors thank B. Z. Katsenelenbaum for interest in the work and discussion of the results.

2/2

USSR UDC 669.295.5.018.29:[620.186 + 539.56]:669.78

KOLACHEV, B. A., GORSHKOV, Yu. V., BUKHANOVA, A. A., SEDOV, V. I., and SHEVCHENKO, V. V.

"Influence of Hydrogen on the Structure and Properties of Titanium Alloy OT4-1"

Tr. Mosk. aviats. tekhnol. in-ta (Works of the Moscow Aviation Technological Institute), 1970, vyp. 7i, pp 16-23 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I779 by the authors)

Translation: Impact tests and tests according to the Troyano method (test basis: 500 days) showed that a hydrogen concentration $< 0.005\%$ is safe for alloy OT4-1. Threshold stresses decline with an increase in hydrogen content and at concentrations of 0.02-0.1% amount to 30 kg/mm^2 given a test basis of 500 days. The tendency of the alloy toward hydrogen embrittlement intensifies with a drop in test temperature. Alloy OT4-1 with an acicular structure is more prone to hydrogen embrittlement than that with a granular phase form. Eight illustrations. Bibliography of five titles.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INFLUENCE OF SEED AGE ON THE CHARACTER OF THE CYTOGEAETIC ACTION OF MUTAGENS HAVING A DELAYED EFFECT -U-

AUTHOR-(03)-PROTOPOPOVA, YE.M., SHEVCHENKO, V.V., GRIGORYEVA, G.A.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 1970, 6(1), 29-35

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLANT MUTATION, MUTAGEN, ETHYLENE, IMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1465 STEP NO--UR/0473/70/006/001/0029/0035

CIRC ACCESSION NO--AP0125093

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125093
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE PHYSIOL. STATE OF CREPIS CAPILLARIS SEEDS ON THE CYTOGENIC ACTION OF SOME MUTAGENS WITH DELAYED EFFECTS (ETHYLENIMINE, ET METHANESULFONATE, AND MALEIC HYDRAZIDE) WAS STUDIED. IN SEEDS STORED 2 MONTHS, THE MUTAGENS INDUCED ONLY CHROMATID ABERRATIONS. SEEDS STORED A LONGER TIME (TO 6.5 YRS) OR KEPT 12 DAYS AT 50DEGREES SHOWED CHROMATID AND CHROMOSOME ABBERRATIONS WHEN SUBJECTED TO ETHYLENIMINE. FACILITY: INST. DEVELOP. BIOL., MOSCOW, USSR.

UNCLASSIFIED

Metallurgy

USSR UDC: 539.55:669.295.5'788

KOLACHEV, B. A., BUKHANOVA, A. A., and [redacted] V. V.

"Influence of Grain Size and Type of Hydride Separation on Mechanical Properties of Titanium"

Izv. VUZ, Tsvetnaya Metallurgiya, No 3, 1970, pp 114-121

Abstract: It has been shown that an increase in grain size increases the tendency of titanium and its alloys to hydrogen embrittlement. This work presents a study of the influence of grain size on the properties of titanium with various contents of hydrogen in order to determine the nature of this hydrogen embrittlement. Studies were performed using 5 mm wire with the composition: 0.05% C, 0.12% Fe, 0.12% Si, 0.13% O_2, 0.02% N_2, remainder Ti. The dependence of rupture stress on linear grain dimensions was found to follow the patch equation. The surface energy of titanium without hydrides is 1100-1200 erg/cm^2, the parameter σ_0=73 kg/mm^2. When rupture occurs along the hydride-titanium boundary, the surface energy is 300-500 erg/cm^2, the value of σ_0 = = 50 kg/mm^2. When a large fraction of the grains include hydrides, rupture

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USSR

KOLACHEV, B. A., et al., Izv VUZ, Tsvetnaya Metallurgiya, No 3, 1970, pp 114-121

occurs along the grain boundaries. When the rupture stress increases with increasing relative share of free grains to the point of rupture through the body of a grain, rupture becomes intracrystalline. Chains of etching holes are noted in the rupture zone, located along the axis of extension. These chains are related to the hydrides located on boundaries parallel to the axis of extension. These holes are not related to the cracks responsible for rupture. Rupture occurs due to formation of pores along boundaries perpendicular or nearly perpendicular to the axes of extension.

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SHEVCHENKO, V. YA.

JPRS 59208

6-73

5

XIII-3. CHARACTERISTIC FEATURES OF THE GROWTH OF ALLOYED SEMICONDUCTOR THIN LAYERS FROM A MELT IN THE GAP BETWEEN SUBSTRATES OF DIFFERENT NATURE

[Article by A. V. Sandulova, P. Rudol'f. A. D. Goncharov, V. Time, V. Ya. Shevchenko, L'vov; Novosibirsk. III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, pp184]

The prospectiveness of the methods of manufacturing semiconductor thin films by directional crystallization of a melt in the gap between dielectric nonorienting substrates is determined by the possibility of obtaining semi- conductor thin films with previously given parameters and structure. The solu- tion of this problem is connected not only with studying the crystallization process of the semiconductor thin films of the melt but also the investigation of means of obtaining alloyed semiconductor thin films and distribution of the admixture in them after manufacture.

At the present time the results of these studies performed on cadmium antimonide are presented. It is demonstrated that the process of crystalliza- tion and, correspondingly, the nature of the admixture distribution in the semiconductor thin layers is determined by the form of the surface and the speed of the crystallization front. From the theoretical analysis of the thermal conditions of cooling of the substrate-layer-substrate composition, the interrelation is determined between the conditions of manufacturing the semiconductor thin layers (the cooling rate, the temperature with respect to length of the layer, the layer and substrate parameters) and the nature of the process of crystallization of the melt (the morphology and the speed of the phase interface in the layer, additional supercooling of the melt at this inter- face). In addition, the optimal conditions of crystallization of alloyed semi- conductor thin layers of a melt are theoretically determined excluding the possibility of the occurrence of significant concentration supercoolings. Possible means of obtaining alloyed semiconductor thin layers from previously alloyed suspensions and when alloying the melt in the process of manufacturing the semiconductor thin layers are demonstrated. In the example of CdSb a study was made of the distribution of the Ag, Te, Se and Ca admixtures in mono- crystalline layers manufactured under various conditions of crystallization. The optimal conditions of manufacturing monocrystalline semiconductor thin layers of CdSb and other semiconductors with the properties of massive speci- mens and homogeneous distribution of the admixture in the volume are determined

USSR

UDC 536.4.088

AMATUNI, A. N., MALYUTINA, T. I., TSORIN, V. G., SHEVCHENKO, YE. B.

"Increasing the Accuracy of Determination of the Coefficients of Linear Thermal Expansion is a Way of Improving the Quality of Mechanisms and Instruments"

Moscow, Izmeritel'naya Tekhnika, No. 7, 1971, pp 40-41

Abstract: Note is taken of the necessity for increasing the precision of measurement of coefficients of linear thermal expansion for design calculations of thermal deformations in machine-tool and instrument production. There is shown the degree of accuracy to which the coefficient of linear thermal expansion of various materials must be known in order to provide for a high degree of reliability of installations working under variable conditions. Note is taken of the fact that dilatometers used for this purpose, either domestically produced or those imported extensively from abroad, do not provide a sufficiently high degree of measurement precision. In addition, the dilatometers being produced by Soviet industry are not of the type required in many instances. Recommendations are made that dilatometers of the appropriate types be produced, and that the ones presently being produced and imported should be subjected to more rigorous testing. Standardized test methods for various dilatometers should be developed. 1 bibliographic entry.
1/1

USSR

UDC 621.378.35

BOGATOV, A.P., YELISEYEV, P.G., PANTELEYEV, V.I., SHEVCHENKO, YE.G.

"Comparison Of Instantaneous And Average Emission Spectrum Of An Injection Laser In A Regime Of Spontaneous Pulsations"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 93-95

Abstract: A comparison is made of the spectra of the multimode generation of an injection laser, obtained with averaging during not more than 10^{-10} sec ("instantaneous" spectrum) and during 10^5 pumping pulses ("average" spectrum). A "Kontrol'-2" photoelectron recorder and a DFS-8 diffraction spectograph were used for observation of spectra with a large resolving time. A number of models of lasers based on heterostructures in the system GaAs--AlAs and operating at 300° K were studied. The data presented in the paper pertain to a diode with a typical behavior for all the models studied which has a one-way heterostructure and a Fabry--Perot resonator with a length of 347 micrometer and a width of 200 micrometer. A pulse of the pumping current had a duration of 200 nsec, a repetition frequency of 5--500 Hz, and an amplitude up to 40 amp. With the presence of deep pulsations of laser emission, the instantaneous spectrum in the separate pulses strongly differs from the average and contains an arbitrary set of modes of the number observed in the average spectrum. It is assumed that the random dis-

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BOGATOV, A. P., et al., Kvantovaya elektronika, Moscow, No 5, May 71, pp 93-95

tribution of photons with respect to the oscillation modes at the start of the pulses predetermines the instantaneous generation spectrum. It is noted that during the transition to a singlemode regime the spontaneous emission pulsations disappear. Received by editors, 28 May 71. 3 fig. 7 ref.

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USSR

UDC 532

VASILEV , V. A., SHEVCHENKO, Ye. Ya.

"On Calculating the Heat Capacities of Aqueous Solutions of Halogenides of Alkali Metals"

Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleyeva (Works of Moscow Chemical Engineering Institute imeni D. I. Mendeleyev), 1972, No. 71, pp 48-51 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye148)

Translation: The equations relating the value of the specific heat capacity C_p of aqueous solutions of halogenides of alkali metals and their concentration are presented in the form of an interpolation series in terms of the concentration. Calculations of C_p are given for 25°C over a wide temperature range with an accuracy sufficient for practical purposes.

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USSR

UDC 621.374

SHEVCHENKO, Ye. Yu.

"On Measurement of Short, Periodically Repeated Time Intervals"

Riga, Avtomatika i Vychislitel'naya Tekhnika, No 3, May/Jun 71, pp 78-84

Abstract: The author analyzes the possibility of measuring short, periodically repeated time intervals by the method of statistical tests. It is proved that this method is not suitable for time measurements in the case of periodic signals. A relationship is derived for guaranteed measurement precision as a function of the ratio between the frequencies of the input and gate pulse trains and also as a function of the rated values of these frequencies. Two tables, four illustrations, bibliography of two titles.

1/1

USSR UDC: 621.373:530.145.6

BYKOVSKIY, V. F., GORELIK, A. V., KULIKOVA, T. A., KUKHMISTROV, V. S., OSTAPENKO, Ye. P., and SHEVCHENKO, Yu. N.

"Exciting Ion Lasers With an A-C Current of Industrial Frequency"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Engineering, Scientific-Technical Collection, Gas Discharge Devices) 1970, No. 3(19), pp 28-32 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D251)

Translation: The possibility of exciting ionic lasers with an a-c current of industrial frequency is demonstrated. The peculiarities of their operation in single- and triple-phase excitation are investigated. Author's abstract

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USSR

SHEVCHENKO, Yu. V., Candidate of Biological Sciences

"Man in Space: A Month Without Gravitation"

Moscow, Priroda, No 5, 1973, p 102

Translation: At a recently held conference on space biology and aerospace medicine[1] Yu. G. Nefedov, L. I. Kakurin, and A. D. Yegorov reported that the reliable proof of the possibility of man's stay under space conditions for up to 18 days and his performance of versatile activity is the main result of the manned flights on the Soyuz-type ships.

The reports showed that, as a ship entered an orbit, many cosmonauts felt a rush of blood to their heads which, while decreasing in intensity, could last throughout the flight. Puffiness and reddening of facial skin were also observed and spatial illusions and a subjective increase in the time

1. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. Tezisy Dokladov na IV Vsesoyuznoy Konferentsii, Kaluga (Space Biology and Aerospace Medicine. Summary of Reports at the 4th All-Union Conference, Kaluga), Vol 1, Moscow-Kaluga, 1972, pp 71-91.

USSR

SHEVCHENKO, Yu. V., Priroda, No 5, 1973, p 102

between the intention to perform an action and the action itself were noted.

Changes characteristic of stay in weightlessness, i.e., a reduction in the cardiac rate and shifts in the so-called phase structure of the cardiac cycle, were noted during orbital flights. This makes it possible to express the assumption about the "unloading" nature of the reactions of the cardiovascular system. The crew members who performed complex maneuvers did not have such reactions. An analysis of the changes in the physiological indexes of the cardiovascular system during the launching and descent of ships, as well as during orbital flights, makes it possible to ascertain the full functional adequacy of the blood circulation system.

Immediately after landing dyskinesia was observed in most cosmonauts in connection with a subjective perception of a considerable increase in the weight of objects and their own bodies. A staggering gait and a feeling of "the earth shaking under one's feet" were noted. The nature of the vibrations of the body's general center of gravity also changed. These data attest to an impaired regulation of the vertical posture. A diminished

USSR

SHEVCHENKO, Yu. V., Priroda, No 5, 1973, p 102

proprioceptive pulsation during spaceflight and a corresponding disinformation, which impairs the regulatory function of the central nervous system during the execution of small movements and the maintenance of a state of rest and walk, are the main static disturbances. Disturbances in coordination lasted for the next 3 to 4 days after landing.

The body weight and blood hydrophilia increased and the mineral content of the bone tissue diminished. In the composition of the peripheral blood there were no pronounced changes which, however, were noted in the wider spectrum of the indexes being studied depending on a flight's duration.

The results of hemodynamic and gaseous exchange responses after 2-day flights did not show any marked changes, whereas, after a flight's duration had been increased to 3-5 and especially to 18 days, a number of indexes pointed to a considerable strain of the mechanisms responsible for maintaining a normal circulation in the vertical position.

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USSR

SHEVCHENKO, Yu. V., Priroda, No 5, 1973, p 102

The reactions of the cosmonauts' cardiovascular and respiratory systems to the physical load after 5-day flights were aggravated. A conclusion is drawn about the tendency toward a reduction in physical work fitness.

The complex of medical and biological investigations conducted according to the Soyuz program expands our knowledge of the effect of weightlessness and a complex of other factors on the human organism and makes it possible to substantiate the possibility of flights of up to 1 month's duration without creating artificial gravitation onboard a spaceship.

Physiology

USSR

UDC 612.273

AGADZHANYAN, N. A., and SHEVCHENKO, Yu. V., Institute of Medical-Biological Problems, USSR Academy of Sciences, Leningrad

"Correlation of Various Functional Shifts During Intensifying Hypoxia in Intact and Anesthetized Animals"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 471-474

Abstract: Respiratory rate, pulse rate, rectal temperature, and relative oxygen concentration in muscle tissue were measured in 286 white mice kept in a 25-liter barochamber with a simulated altitude of 12,000 m, achieved at a rate of 25 m/sec. Graphs of the results indicate that there are two phases of adaptive changes taking place during the simulated ascent. In the first phase, oxygen concentration in muscle tissue decreases rapidly, body temperature is maintained, and respiratory and pulse rates rise to a precipitous peak at a simulated altitude of about 3,000 m. In the second phase, oxygen concentration in muscle tissue decreases at a slower rate but soon reaches critical values, body temperature falls, and a second sharp peak in respiratory and pulse rates occurs at a simulated altitude of about 7,000 m. It was concluded that activation of the carotid sinus and aortic arch chemoreceptors with redistribution of blood from nonvital to vital organs is the main regulatory mechanism in the first phase, while cerebral hypoxia is the governing factor in the second phase of acute hypoxic hypoxia.

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Acc. Nr: AP0041859 Abstracting Service: CHEMICAL ABST 4/70 Ref. Code: 4P 0366

89456k Structure and reactivity of hydrazine derivatives. XXI. Kinetics of the alkaline hydrolysis of carboxylic acid hydrazides. Grekov, A. P.; Shvachenko-Korzhenetskaya, L. K.; Malyutenko, S. A.; Mavrenik, O. V. (Inst. Khim. Vysokomol. Soedin., Kiev, USSR). *Zh. Org. Khim.* 1970, 6(1), 98-101 (Russ). The reaction rates, activation energies, Arrhenius frequency factors, and reaction enthalpies were detd. of alk. $RCONHNH_2$ (I), R = Ph, *p*-MeC_6H_4, *p*-$MeOC_6H_4$, Pr, Me, or $MeOCH_2$) hydrolysis at 25, 40, or 60°. The ionization of I increases very rapidly with the concn. of alk. solns.; in 5% KOH, 90% I is ionized. The ionization hinders the attack of OH^- on the CO group of I. Thus, the hydrolysis rate decreases with an increase in the alk. soln. concn. Electron-donating substituents of R also hinder the attack of OH^-, but they also decrease the ionization of I. Therefore, the effect of R structure on the kinetics of I hydrolysis is only slight. CPJR

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

2/70

243111 INDUCTION COIL for HF heating of the inner surface of cylindrical workpieces surrounds a laminated central core. It consists of a secondary coil, in the form of two semicircular rings which accommodate between L-shaped ribs a multi-turn primary winding. If the outside of a rim has to be heated, a similar system can be applied on its outside. Cooling coils with a coolant are arranged on the periphery of the secondary coil which acts as the HF inductor.

2.11.67 as 1194376/24-7 N.I. DOROFEEVA & L.P. SHEVCHENKO-PUKKI (16.9.69) Bul. 16/5.5.69. Class 21h, Int. Cl. B 23k.

1/2 Dorofeyeva, N. I.; Shevchenko-Pukki, L. P. 4

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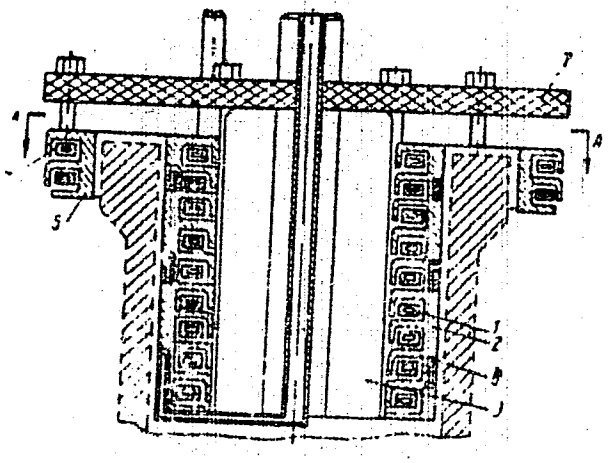

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USSR

UDC: 621.311.69

SINITSYN, N. I., SHEVCHIK, V. N., PESOCHINSKIY, Z. I., Scientific Research Institute of Mechanics and Physics Affiliated With Saratov State University

"A Supply Device for a Backward-Wave Traveling-Wave Tube"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329648, Division H, filed 13 Oct 70, published 9 Feb 72, p 220

Translation: This Author's Certificate introduces a supply device for a backward-wave traveling-wave tube with a decelerating system in the form of electrodes with openings of alternating transverse dimensions for passage of electrons and with periodic electrostatic focusing. The device contains several voltage sources. As a distinguishing feature of the patent, the current drain on the frequency control circuit is eliminated by connecting the source of voltage for electric frequency control by its positive lead to the cathode of the tube, and by its negative lead to the electrodes with larger electron-passage openings, while the source of voltage applied to the electrodes with smaller electron-passage openings is connected to the cathode by its negative lead.

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Recorders and Transducers

USSR

UDC 534.232.082.73

POLOTNYAGIN, V.A., SHEVCHIK, V.N.

"Concerning A Theory Of The Excitation Of Elastic Microwaves By Multiple Film Transducers (Taking Account Of The Effect Of Metallic And Dielectric Layers)"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1260-1268

Abstract: The operation is analyzed of a microwave transducer in the form of piezoelectric films enclosed between two metallic layers (electrodes). Attention is given to the acoustic load of the transducer and to a thin-film transducer loaded from two two sides by acoustic lines. Expressions are obtained which make it possible to take account of the effect of the metal and dielectric layers on the frequency properties of a film transducer. The possibility is shown of increasing the effectiveness because of the elastic resonance in the supplementary passive layers. 5 fig. 8 ref. Received by editors, 21 April 1971.

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USSR

UDC 621.385.6

SHEVCHIK, V.N., TRUBETSKOV, D.I.

"Analytical Methods Of Computation In Microwave Electronics"

Analiticheskiye metody raschets v elektronike SVCh (cf. English above), Moscow, "Sov. radio," 1970, 584 pp, ill. 2 r. 10 k. (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A164K)

Translation: The book is an introduction to the analytical method of computation of the excitation of electromagnetic fields by electron streams and their amplification. In it the theory of the processes in O- and M-type devices is presented, and the special forms are considered of the interaction of electrons with microwave fields (interaction of the M-J type, electron-wave interaction, and others) as well as cyclotron parametric amplifiers, microwave photoelectron devices, devices of the MTsR type and others. Comparatively new problems of microwave electronics are considered which are not reflected in the literature: analysis of the effect of the transverse components of a high-frequency field and the transverse movements of the electrons in the process of interaction (Type O) of a beam with a wave, non-adiabatic theory of ray devices of the magnetron type, and others. Annotation.

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USSR

UDC 624.07:534.1

PISARENKO, G. S., SHEVCHUK, A. D., BOGINICH, O. Ye., SHEMEGAN, A. A.

"On the Problem of Studying Energy Scattering in a Material Under High-Frequency Oscillations"

V sb. Rasseyaniye energii pri kolebaniyakh mekh. sistem (Energy Scattering Under Oscillations of Mechanical Systems -- Collection of Works), Kiev, "Nauk. dumka", 1972, pp 41-50 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V265)

Translation: A computational-experimental method is presented for determining the decrement in damping in a material under high-frequency vibrations. The basic idea of the method is that in the test process the resonance frequency shift of the sample is measured for different vibration amplitudes. The coefficients of the approximating polynomial showing the damping decrement as a function of stresses are determined from the resulting resonance skeleton curve. A sample calculation is given. 6 ref. I. Sh. Rakhmatulin.

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USSR

UDC 539.43

AFONIN, A. I., KUZ'MENKO, V. A., and SHEVCHUK, A. D., Kiev

"Problem of the Influence of Loading Frequency on Fatigue Strength of Metal"

Kiev, Problemy Prochnosti, No 4, Apr 72, pp 62-67.

Abstract: Results are presented from fatigue testing with symmetrical extension-compression cycles at 10 and 20 KHz for copper, armco iron, type 45 steel, chrome steels, nickel alloys, and type VT3-1 alloy. The results produced are compared with the results of low-frequency tests. It is found that the influence of loading frequency on cyclical strength is greater, the higher the level of energy dissipation in the material and the more ductile the metal.

USSR

UDC: 539.43

Kuz'menko, V. A., Shevchuk, A. D., Kiev

"Dissipation of Energy in Metals in High-frequency Fatigue Tests. Report 1"

Kiev, Problemy Prochnosti, No 7, 1972, pp 76-81.

Abstract: The dissipation of energy in the material was determined calorimetrically during cyclical extension and compression of specimens of copper, armco iron, steels types 40 and 1Kh18N10T and D16T alloy at 20 KHz. The amplitude dependences of the characteristics of energy dissipation are determined with gradually increasing amplitude of stresses and with constant stress value during the process of fatigue testing.

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USSR

UDC 620.178.311.8

TROYAN, I. A., SHEVCHUK, A. D., and TSIMBALISTYY, YA. I., Institute of Strength Problems, Academy of Sciences Ukrainian SSR

"Formation of Temperature Stresses During High-Frequency Fatigue Tests"

Kiev, Problemy Prochnosti, No 3, Feb 73, pp 65-69

Abstract: An attempt was made in this work to evalute the temperature field and stress in the high-frequency fatigue testing of five different materials: steel E10, steel 45, alloy D16T, copper, and alloy 1Kh18N10T. The following premises were made: 1) the samples were in the form of round infinite rods. The level of variable load was independent of the axial coordinate. Displacements in the axial direction were not constrained. 2) The coefficients of energy dissipation and thermoconductivity did not vary with change of thermal and stress states or the material. 3) The steady-state mode was examined. An analysis of the temperature stresses forming in the samples due to hysterisis losses in cyclic loading is given. Testing of the five materials 1/2

USSR

TROYAN, I. A., et al., Problemy Prochnosti, No 3, Feb 73, pp 65-69

at a frequency of 20 Khz showed that in the case of a large coefficient of energy dissipation and low thermoconductivity, the thermal stresses can reach a significicant magnitude, which, is ignored, leads to errors in the determination of stresses. At the same time these stresses do not exceed the fatigue strength by more than 3.5% on the basis of 10^9 cycles and have little effect on the fatigue processes. 7 figures, 2 tables, 7 bibliographic references.

2/2

USSR

UDC 538.082:533.082

KALMYKOV, A. A., TIMOFEYEV, A. D., SHEVCHUK, B. A.

"Using Charged Particle Beams to Measure Magnetic Field Strength in a Plasma"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 11, Nov 71, pp 2442-2453

Abstract: The authors analyze the possibilities of measuring the strength of magnetic and electric fields by using a beam of charged particles in coaxial plasma systems in the presence of E_r, E_z, and H_ϕ field components. A detailed analysis is made of the conditions under which such measurements are possible and of the factors which influence measurement accuracy. The problem is solved both analytically and by numerical methods for various forms of distribution of the fields. The distribution of magnetic fields is experimentally measured in a coaxial plasma pulse accelerator by using beams of protons and deuterons with an energy of 10-40 keV. The experimental results are compared with data of measurements using magnetic probes. The authors thank A. I. Morozov for interest in the work. Eight figures, bibliography of fourteen titles.
1/1

USSR

UDC 538.573.001.5

KLYUKIN, L.M., MAKSIMOV, V.I., STEPANOV, B.M., FABRIKOV, V.A., SHEVCHUK, E.N.

"Registration Of The Structure Of Microwave Radiation On Magnetic Film"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1114-1116

Abstract: The thermal method of recording radiation on thin magnetic film with strip domains described previously in two papers by L.M. Klyukin and others was used for registration of the structure of microwave radiation. The scheme of the device used for recording microwave radiation on magnetic film and a block diagram of the experimental equipment used for registration are shown and described. The authors thank V.P. Kuznetsov for assistance in conducting the experiment. 3 fig. 2 ref. Received by editors, 7 June 1971.

1/1

Environment

USSR

SHEVCHUK, I., Candidate of Medical Sciences

"A Great Responsibility"

Moscow, Meditsinskaya Gazeta, 17 Jan 73, p 1

Translation: It is difficult to overestimate the great significance of the resolution of the Central Committee of the Communist Party of the Soviet Union and the Council of Ministers USSR for strengthening the protection of nature and improving the use of natural resources. However, the decree concerns not only the riches of our land, which must be protected and augmented. This document is new evidence of the concern of the party and government primarily for the health of the prople, for the fact that we all breathe clean air and drink unpolluted, clear water. There is one more aspect in this resolution. The attention to the psychic health of man, to the emotional sphere of his life. It is recognized that forests and parks, blue visions of lakes and rivers, intercourse with nature has a beneficial effect on the human psyche.

Our duty is to fulfill all points of this important resolution. A great responsibility is placed on doctors. First, they must insure the development of measures directed toward preventing any dumping of raw or

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USSR

SHEVCHUK, I., Meditsinskaya Gazeta, 17 Jan 73, p 1

not sufficiently clear water into reservoirs, and even increasing the acreage of greenery in cities.

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1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF THYROID TOXICOSIS ON COPPER AND ZINC METABOLISM AND ON THE MORPHOLOGY AND FUNCTION OF THE PANCREAS IN RATS -U-

AUTHOR--SHEVCHUK, I.A., TSAPOK, P.I.

COUNTRY OF INFO--USSR

SOURCE--PROBL. ENDROKRINOL. 1970, 16(1), 75-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYROID GLAND, THYROID HORMONE, BLOOD CHEMISTRY, COPPER, ZINC, PANCREAS, LIVER FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1708 STEP NO--UR/0502/70/016/001/0075/0079

CIRC ACCESSION NO--AP0103474

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103474

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADMINISTRATION OF 100 MG THYROID EXT.-100 G-DAY FOR 20 DAYS TO MALE RATS DEPRESSED THEIR BODY WT. BY 19-30PERCENT AND THE WT. OF THEIR THYROID GLANDS DECREASED FROM 15.6 TO 9.1 MG-100 G. INTACT ANIMALS HAD 0.665 MG PERCENT ZN IN THEIR BLOOD, 3.114 MG PERCENT IN THE LIVER, AND 1.670 MG IN THE PANCREAS AND RATS GIVEN THYROID EXT. HAD 0.394, 1.927, AND 0.480 MG PERCENT, RESP. CU IN INTACT RATS WAS 0.155, 0.339, AND 0.226 MG PERCENT, RESP., AND AFTER THYROID EXT. 0.258, 0.482, AND 0.172 MG PERCENT, RESP. SERUM CERULOPLASMIN WAS 27.9 UNITS IN INTACT AND 42.09 UNITS IN EXPLT. RATS. THE NO. OF ISLETS AND PERCENTAGE OF ENDOCRINE TISSUE IN THE PANCREAS DECREASED IN THYROID TOXICOSIS; SERUM SUGAR WAS INCREASED AND LIVER GLYCOGEN DECREASED.

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920012-1"

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SPECTRA OF 3,OXO,2,3,DIHYDROTHIONAPHTHENE AND ITS DERIVATIVES. XI. INFRARED SPECTRA AND SPATIAL STRUCTURE OF SOME INDOGENIDES AND
AUTHOR-(03)-MOSTOSLAVSKIY, M.A., KRAVCHENKO, M.D., SHEVCHUK, I.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1008-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, MOLECULAR STRUCTURE, HETEROCYCLIC SULFUR COMPOUND, HETEROCYCLIC NITROGEN COMPOUND, CARBONYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1146 STEP NO--UR/0076/70/044/004/1008/1012

CIRC ACCESSION NO--AP0128668

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

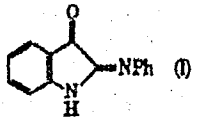
CIRC ACCESSION NO--AP0128568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, VCO AND VNH IN THE IR SPECTRA OF COMPDS. I AND II (R PRIME1, R PRIME2 EQUALS CO SUB2 ET, AC, CN) WERE STUDIED IN CCL SUB4 AND VASELINE OIL. IN I (R PRIME 1 OR R PRIME2 CONTAINS A CO GROUP), THE EXISTENCE OF A N,H...O BOND WAS PROVED. A SHIFT OF 30 CM PRIME NEGATIVE1 TO HIGHER FREQUENCIES FOR VCO IN I COMPARED TO II IS CAUSED BY SIX MEMBERED RING FORMATION. VCO IN R DOES NOT CHANGE IF IT IS TRANS TO X; IF CIS, THERE IS A DECREASE OF 35-50 FOR I AND 15-33 CM PRIME NEGATIVE1 FOR II. THE STRUCTURE OF THE FOLLOWING COMPDS. WAS PROVED TO BE (X, TRANS R PRIME1, CIS R PRIME2, AND M.P. GIVEN): NH, CO SUB2 ET, AC, 121DEGREES; NH, CN, CO SUB2 ET, 204.5-5.5DEGREES; S, AC, CO SUB2 ET, 9103DEGREES; S, CO SUB2 ET, AC, 108-9DEGREES.

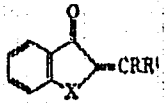
UNCLASSIFIED

Acc. Nr: AP0049747 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: U20409

100398r Spectra of 3-oxo-2,3-dihydrothionaphthene and its derivatives. X. Some indogenides of an aliphatic series. Mostoslavskii, M. A.; Shevchuk, I. N. (Rubezhansk. Filial Nauch.-Issled. Inst. Org. Poluprod. Krasitelei, Rubezhnoe, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 21-3 (Russ). Isatin 2-anil (I) (10 g) was heated 10 min at 120° with 35 ml Ac_2O to give 8.42 g of its acetyl deriv., m. 133-3.5° (PhMe), a mixt. of which (0.5 g) and 2 ml Ac_2CH_2 was boiled 14 hr to give 0.05 g II (R = R¹ = Ac), m. 215-16° (PhCl). To obtain II



(I)



(II, X = NH)
(III, X = S)

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($R = R^1 = CO_2Et$), 6 g I, 4.2 g di-Et malonate, 35 ml Ac_2O and 5 drops of AcOH was boiled 2 hr to give II ($R = R^1 = Et$), m. 121.5–2.5° (C_6H_6-ligroine). Similarly prepd. compds. were II (R, R^1, and m.p. given): CN, CN, 260–2° (PhCl); CO_2Et, Ac, 120–1° (hexane); CN, CO_2Et, 204.5–5.5° (EtOH). In the visible region II absorb more intensively than III and the bathochromic shift depends on R and R^1 to a great extent. The shift is 20–5 nm if R and R^1 are Ac or CO_2Et and if one of the substituents is nitrile the shift amts. to 6–8n m. There is no proportionality in the shifts among II and III. None of the synthesized II possess any phototropic properties as found in III.

S. K. Banerjee

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19801660

USSR

UDC 669.111

GOREV, K. V., SHEVCHUK, L. A., DUDETSKAYA, L. R., GURINOVICH, V. I.

"Study of the Structure and Graphitizing Annealing of High-Purity Fe-C and Fe-C-Si Alloys"

Izv. AN BSSR, Ser. Fiz-tekhn. Nauk, No 2, Minsk, 1971, pp 49-54.

Abstract: This work presents a study of the structure and graphitization process of high-purity Fe-C and Fe-C-Si alloys. The carbon concentration in the binary alloys studied was 1.5, 2.7, and about 4.2%. In the two groups of trinary alloys studied with carbon contents of about 1.5 and 2.7%, the silicon concentration was varied from 0.1 to 1%. Annealing of pure binary specimens with 2.7 and 4.2% C result in the formation of a few very large segregations of graphite, primarily located along grain boundaries. The addition of silicon facilitated seeding and growth of graphite inclusions not only in microscopic cavities and along grain boundaries, but within the grains as well. The addition of 0.3-0.4% Si greatly facilitates graphitization.

USSR

UDC 669.111

GOREV, K. V., SHEVCHUK, L. A., DUDETSKAYA, L. R., GURINOVICH, V. I., Physico-technical Institute of the Academy of Sciences BSSR

"Investigation of the Structure and Graphitizing Annealing of Fe-C and Fe-C-Si Alloys of High Purity"

Minsk, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 49-54

Abstract: The structure and graphitization process of Fe-C and Fe-C-Si high purity alloys was studied. The carbon concentration in the binary alloys was 1.5, 2.7 and about 4.2% and in two groups of ternary alloys with a carbon content of about 1.5 and 2.7% the silicon content varied from 0.1 to 1%. The gravitation of samples with a carbon concentration of about 1.5% was investigated in cast samples and in samples subjected to homogenization at 980°C for 80 hours in an atmosphere of pure helium. The initial structure of these alloys in the cast state contained pearlite with separation of secondary cementite along the boundaries of the former grains of austenite and inside grains in the form of needles. In the silicon alloys, the structure was relatively finer. The homogenizing annealing of the steel in aiding the growth of austenite grains and avoiding heterogeneities in its composition cause the formation of large icecicles of

USSR

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920012-1"

GOREV, K. V., et al, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 49-54

secondary cementite in both the siliconless alloy and in alloys with silicon. The microstructure of alloys with a carbon content of 2.7% in the cast state contained converted primary austenite and ledeburite. The amount of the latter increased somewhat as the silicon concentration in the alloy increased. The binary alloy with a carbon content of 4.2% in the cast state had a ledeburite structure; in some alloys there was also observed a small amount of primary cementite in the form of needles. The study of the graphitization process of pure iron-carbon alloys obtained by the carbonization of carbonyl iron by reactor graphite in a vacuum showed that graphitization of these alloys has certain special characteristics as compared with ordinary iron alloys with carbon. Graphitization occurs in places where defects in the crystalline structure are present due to difficulty of nucleation of graphite in pure alloys. The separation of graphite in siliconless and low silicon alloys has a strongly branched form. The number of the separations is not great and they are nonuniformly distributed over a cross section of the casting. All treatments of the alloys that aid in nucleation of graphitization centers lead to a shortening of the duration of graphitization. Silicon especially helps the graphitization of alloys, especially at concentrations of more than 0.4-0.5%. The mechanism for the effect of silicon on the formation and growth of graphite inclusions in Fe-C-Si alloys is still not understood to a sufficient degree. It is only hypothesized that in the presence of silicon carbon atoms are distributed nonuniformly. Silicon apparently forms complexes with iron which drive back the carbon. Conditions are then made easier for the formation of atomic fluctuations necessary for the nucleation of graphite.

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USSR UDC 547.558.1

VOLYNSKAYA, Ye. M., SHEVCHUK, M. I., and DOMBROVSKIY, A. V., Chernovits State University

"Monophosphonium Salts and Monophosphoranes Based on 4-4'diacetyldiphenyl and its Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 5, 1972, pp 986-992

Abstract: A study was made of syntheses based on 4-acetyl-4'-(α-bromacetyl) derivatives of the diphenyl, diphenylmethane, diphenylethane, diphenyl sulfide, and diphenylsulfoxide of monophosphonium salts and monophosphoranes which contain an acetyl radical whose carbonyl group is not connected with the P=C ylid bond. Five phosphonium salts were synthesized through the reaction of the above derivatives with triphenylphosphine and subsequent loss of HBr. The products had the general structure $H_2NCONHN{=}C(CH_3)C_6H_4XC_6H_4COCH{=}PPh_3$ where X = CH_2, CH_2CH_2, S, and SO_2. Physical data and elemental composition for the synthesized compounds are given in several tables along with preparations and IR and UV spectra.

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USSR

UDC 547.558.1:621

SHEVCHUK, M. I., VOLYNSKAYA, YE. M., and DOMBROVSKIY, A. V., Chernovtsy State University

"Synthesis and Investigation of the Reactivity of Mono- and Bis-β-ketophosphoranes Containing Polynuclear Noncondensed Aromatic Radicals"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1047-1053

Abstract: Mono- and bis-β-ketophosphoranes with polynuclear noncondensed aromatic radicals in the alkylidene portion of the molecule were obtained by dehydrobromination of mono- and bis-β-ketophosphonium salts. It has been shown that on chlorination, bromination and iodination these types of phosphoranes form respective α-halosubstituted β-ketophosphoranes. It has been established that these phosphoranes [$RC_6H_4COCH{=}PPh_3$] react with p-nitrobenzyl and cinnamic acid chlorides forming α-acylated addition products, and with acetyl chloride they form O-acylated phosphonium chlorides.

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USSR

UDC 547.341

SHEVCHUK, M. I., KHALATURNIK, M. V., and DOMBROVSKIY, A. V., Chernovtsi State University

"IR Spectra and Chemical Structure of Aroylcarbomethylenetriphenylphosphoranes and Aroylcarbomethyltriphenylphosphonium Bromides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2630-2634

Abstract: Investigation of the IR spectra of methyl aryl α-diketones, aroylcarbomethylenetriphenylphosphoranes, aroylcarbomethyltriphenylphosphonium bromides, aroylcarbomethylene-δ-oximetriphenylphosphoranes and aroylcarbomethyl-δ-oximetriphenylphosphonium bromides showed that the β-carbonyl groups of the aroylcarbomethylenetriphenylphosphoranes are conjugated with the P:C double bond. The δ-carbonyl group on the other hand is not conjugated with P:C and therefore participates in reactions characteristic of the carbonyl group. The β-carbonyl group of aroylcarbomethylene-δ oximetriphenylphosphoranes, in spite of the conjugation with the P:C bond, forms hydrogen bonds with the hydroxyl group hydrogen of the δ-oxime function. This ability is retained even upon transition from δ-oximephosphoranes to their hydrobromides (phosphonium salts).

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USSR UDC 547.448'558.1

KHALATURNIK, M. V., SHEVCHUK, M. I., and DOMBROVSKIY, A. V.

"Aroylcarboalkylenyl-gamma-oximetriphenylphosphorans"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 5, May 72, pp 992-995

Abstract: The reaction of aroylcarboalkylenyltriphenylphosphorans with hydroxylamine and 2,4-dinitrophenylhydrazine forms aroylcarboalkylenyl-gamma-oximetriphenylphosphorans and aroylcarboalkylenyl-gamma-(2,4-dinitrophenylhydrazone)triphenylphosphorans, respectively. It was found that aroylcarboalkylenyl-gamma-oximetriphenylphosphorans [ArC(=NOH) COC(R)-PPh_3] are capable of entering into the Wittig reaction with aldehydes. With hydrogen bromide they form bromides of aroylcarboalkylenyl-gamma-oximetriphenylphosphonium. The results are summarized in a table. Ultraviolet spectra are given.

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USSR UDC 547.836:661.718.1'

SHEVCHUK, M. I., ANTONYUK, A. S., and DOMBROVSKIY, A. V., Chernovtsy State University

"Phosphonium Salts and Phosphoranes With Condensed Aromatic Rings in the Alkylidene Part of the Molecule"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1696-1701

Abstract: The article describes the synthesis of new phosphonium bromides and phosphoranes containing such aroyl radicals as 2- and 3-carbophenanthryl, 5-carboacenaphthenyl and 4,7-dicarboacenaphthenylene in the alkylidene part of the molecule. Bromination of 2- and 3-acetylphenanthrene, 9-acetylanthracene, 5- acetyl- and 4,7-diacetylacenaphthene in an ether-dioxane solution gives respectively 2- and 3-bromoacetylphenanthrenes, 9-bromoacetylanthracene, 5-bromoacetylacenaphthene and 4,7-bisbromoacetylacenaphthene. The resultant bromoketones react with triphenylphosphine to give phosphonium bromide salts. The latter are readily dehydrobrominated to give new aroylmethylenetriphenylphosphoranes. The Wittig reaction of the latter with p-nitrobenzaldehyde and 9-anthraldehyde gives α, β-unsaturated ketones containing condensed aromatic rings.

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USSR

UDC 547.341

SHEVCHUK, M. I., TOLOCHKO, A. F., and DOMBROVSKIY, A. V., Chernovtsy State University

"Aroyl- α(p-nitrobenzyl)methylenetriphenylphosphoranes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 540-545

Abstract: The reaction of aroylmethylenetriphenylphosphoranes with p-nitrobenzyl bromide gave a series of aroyl-α-(p-nitrobenzyl)methylenetriphenylphosphoranes (I). Analogously, starting with carbomethoxymethylenetriphenylphosphorane and p-nitrobenzyl bromide, the carbomethoxy-α-(p-nitrobenzyl)-methylenetriphenylphosphorane (II) was obtained. Aroyl-α-(p-nitrobenzyl)-methyltriphenylphosphonium bromide and aroyl-α-chloro-α-(p-nitrobenzyl)-methyltriphenylphosphonium chloride were obtained from the reaction of α-p-nitrobenzyl substituted aroylmethylenetriphenylphosphoranes with hydrogen bromide and phosphorus pentachloride. It was shown that (I) does not react with carbonyl compounds. Reaction of (II) with phenylglyoxal gave the methyl ether of α-(p-nitrobenzyl)-β-benzoylacrylic acid.

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USSR

UDC 547.446

SHEVCHUK, M. I., SHPAK, S. T., and DOMBROVSKIY, A. V., Chernovtsy State University

"ω-Halo-ω-isonitrosoacetophenones and Their Conversion to Aroylcyanides by Reactions With Triphenylphosphine"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 5, May 71, pp 1004-1007

Abstract: Reaction of bromomethylarylketones with alkylnitrites and gasseous HCl or HBr gives good yields of ω-chloro- or ω-bromo-ω-isonitrosoacetophenones. Nitrosyl chloride formed in this reaction from isopropylnitrite and HCl reacts with ω-bromo-ω-isonitrosiacetophenones replacing the ω-bromine with a chlorine atom to yield their ω-chloro derivatives. The products obtained are stable crystalline materials, soluble in common organic solvents. Heating equimolar amounts of ω-chloro derivatives with triphenylphosphine (TPP) results in a vigorous exothermic reaction leading to the formation of TPP oxide and aromatic ketoacid nitriles. The ω-bromo derivatives react much less vigorously in this reaction.

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USSR UDC 547.241:231

SHEVCHUK, M. I., VOLYNSKAYA, Ye. M., and DOMBROVSKIY, A. V., Chernovtsy State University

"α-Nitrosation of Phosphonium Salts -- a New Method of Synthesizing Nitriles"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1199-2004

Abstract: Earlier research indicates that hydrogen atoms at an ylid carbon atom in phosphonium salts and phosphoranes are capable of electrophilic substitution. The reaction of phosphonium salts with alkyl nitrites in the presence of hydrogen chloride results in the nitrosation of ylid carbon atoms to form α-nitrososubstituted phosphonium salts. Dehydrochlorination of α-nitrososubstituted salts yields nitriles and triphenylphosphine oxide. Dehydrochlorination of carbethoxy-α-nitrosomethyltriphenylphosphonium chloride yields carbethoxy-α-nitrosomethylenetriphenylphosphorane. The yields and other properties of the new 12 compounds are presented in tabular form.

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USSR

UDC 547.341

SHEVCHUK, M. I., ANTONYUK, A. S., DOMBROVSKIY, A. V., Chernovtsy State University, Chernovtsy, Ministry of Higher Education Ukrainian SSR

"Synthesis of Phosphonium Salts and of Phosphoranes From 2-Acetyldibenzofurane"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1717-1725

Abstract: Reacting bromomethyl-2-dibenzofuraneketone with triphenylphosphine yields 2-carbodibenzofuranemethyltriphenylphosphonium bromide, which is dehydrobrominated to 2-carbodibenzofuranemethylenetriphenylphosphorane (I). In turn, (I) was reacted with iodobenzylchloride, bromine, bromiodine, and acyl chlorides of the chloroacetic, phenylacetic, p-nitrobenzoic, cinnamic, and pyromucic acids, yielding nine α-substituted phosphoranes with the dibenzofurane radical. The chloro-, bromo-, and iododerivatives of (I) form phosphonium iodides with ethyl iodide -- 2-carbodibenzofuranemethylhalidomethyltriphenylphosphonium iodides, which are capable of under-

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USSR

SHEVCHUK, M. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1717-1725

going an exchange reaction with lead acetate, replacing the iodine anion by the acetate anion. IR and UV spectra of representative products are reported; physical properties are tabulated.

2/2

USSR

UDC: 547.341

SHEVCHUK, M. I., TOLOCHKO, A. F., and DOMBROVSKIY, A. V., Chernovtsy State University

"Alpha-Substituted Alkoxycarbonylmethylenetriphenylphosphoranes." New Reactions of Phosphoranes with Phenylglyoxal

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 57-66

Abstract: Twelve crystalline alpha-substituted carbomethoxy- and carbethoxymethylenetriphenylphosphoranes were prepared by transacylation, with formation of intermediate phosphonium salts. Thus, treating carbomethoxy- or carbethoxymethylenetriphenylphosphoranes (Ia or Ib) with iodine bromide in chloroform with cooling gave oily phosphonium salts which with saturated sodium carbonate, gave 91-92% yields of alpha-iodinated Ia or Ib. The latter exchanged iodine for the thiocyano group in the reaction with potassium thiocyanate in methanol to give a 73% yield of the alpha-thiocyano analogs, previously unknown. Heating Ib with allyl bromide or methyl bromoacetate in benzene yielded crystalline carbethoxymethyltriphenylphosphonium bromide (II) and alpha-allyl-or alpha-carbomethoxymethyl-substituted Ib. Similarly, adding benzyl iodide to a boiling solution of Ia or Ib in anhydrous ethyl acetate gave crystalline iodine analogs of II, while the filtrates gave 80-84.7%

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USSR

SHEVCHUK, M. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 57-66

yields of alpha-benzyl-substituted Ia and Ib, respectively. Ia and Ib reacted similarly with acyl chlorides in benzene to give chlorine analogs of II and 73-97% yields of alpha-acyl-substituted Ia and Ib, where acyl is alpha-toluyl, benzoyl, p-nitrobenzoyl, or 2-furoyl. The exothermic reactions of Ia, Ib, alpha-carbomethoxy methyl-substituted Ib, or alpha-benzyl-substituted Ia and Ib with phenylglyoxal gave triphenylphosphine and ketoesters: methyl and ethyl beta-benzoylacrylates, ethyl alpha-carbomethoxymethyl-(III), methyl alpha-benzyl-, and ethyl alpha-benzyl-(IV)beta-benzoylacrylates, respectively. Crystalline carbomethoxy-3-carbethoxy-5-phenyl- and 3-carbethoxy-2,5-diphenyl--2,3-dihydrofuranes were obtained in 32-33% yields by distillation in vacuo of III and IV, respectively. The above beta-benzoylacrylates except IV were identified by the melting points of their 2,4-dinitrophenylhydrazones. The ketoesters differed from dihydrofurane derivatives with respect to their IR and UV spectra.

2/2

USSR

UDC: 547.558.1

SHEVCHUK, M. I., VOLYNSKAYA, Ye. M., and DOMBROVSKIY, A. V., Chernovtsy State University

"Acylalkylenyltriphenylphosphoranes"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 48-57

Abstract: Stable crystalline (acylalkyl)triphenylphosphonium bromides (I) and title compounds (II) are derived from aliphatic alpha-bromoketones. Three I were prepared by heating bromoacetone, alpha-bromoethyl methyl or alpha-bromomethyl isobutyl ketones with triphenylphosphine in toluene. Treating I with sodium ethoxide in ethanol for twelve hours gave the corresponding compounds II. Alpha-halosenated acetyl- and trimethylacetylmethylenetriphenylphosphoranes were obtained by treating the corresponding II with iodobenzene dichloride, bromine, or iodine bromide. Alpha-iodinated II easily react with potassium thiocyanate to give alpha-thiocyanosubstituted II. The alpha-acylsubstituted analogs of the above halogenated phosphoranes were prepared by transacylation of II. Compounds II formed O-acyl(acetyl or benzoyl) triphenylphosphoniumalkene chlorides (III) with acetyl or benzoyl chlorides. The III salts are easily converted by sodium ethoxide to the corresponding original II phosphoranes in 100% yields. Acylphosphoranes II reacted on

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SHEVCHUK, M. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 48-57

heating with p-nitrobenzaldehyde and with phenylglyoxal to give α,β-unsaturated ketones. The acylphosphoranes described above exhibited characteristic IR and UV spectral bands.

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1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REACTION OF DIARO'LETHYLENES WITH HYDRAZINE HYDRATE AND O,PHENYLENEDIAMINE -

AUTHOR-(03)-SHEVCHUK, M.I., TOLOCHKO, A.F., DOMBROVSKIY, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1108-13

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, ISOMER, BENZENE DERIVATIVE, HYDROGEN BONDING, ORGANIC AZO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1278 STEP NO--UR/0366/70/006/005/1108/1113

CIRC ACCESSION NO--AP0134952

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134952

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NMR SPECTRA OF CIS AND TRANS ISOMERS OF BZCH:CHBZ (I) SHOWED THAT THERE IS NO H BONDING BETWEEN CO GROUPS AND THE H OF THE CH CH GROUP. THE REACTION OF TRANS I WITH N SUB2 H SUB4.H SUB2 O GAVE 3,PHENYL,6,(R,SUBSTITUTED),PYRIDAZINE (R EQUALS PH) (II). SIMILARLY OTHER II (R EQUALS 4,MEC SUB6 H SUB4, 4,MEOC SUB6 H SUB4, 4,CLC SUB6 H SUB4, 4,BR, C SUB6 H SUB4, OR BETA,NAPHTHYL) WERE PREPD. HEATING O,H SUB2 NC SUB6 H SUB4 NH SUB2 WITH TRANS,BZCH:CHR (R AS ABOVE) GAVE 2,PHENYL,5,(R,SUBSTITUTED), 1,6,BENZODIAZOCINES.

UNCLASSIFIED

Acc. Nr: AP0049511 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0079

100818c α-Substituted alkoxycarbonylmethylenetriphenylphosphoranes. New reactions of phosphoranes with phenylglyoxal. Shevchuk, M. I.; Tolochko, A. F.; Dombrovskii, A. V. (Chernovits. Gos. Univ., Chernovtsy, USSR). Zh. Obshch. Khim. 1970, 40(1), 57–66 (Russ). Adding 0.114 mole freshly prepd. IBr in 15 min to 0.114 mole $Ph_3P:CHCO_2R$ (Ia) in $CHCl_3$ with ice cooling gave after 30 min an oily phosphonium salt, which, with satd. Na_2CO_3 20 min, gave $Ph_3P:CXCO_2R$ (X = I, R = Me), m. 165.5–6.0°; similarly was prepd. the R = Et analog, m. 134–5°. The former and KCNS in MeOH gave the analog with X = CNS, R = Me, m. 166–6.5°; similarly was prepd. 73% analog (CNS, Et) m. 140–1°. Heating 3.4 g Br-$CH_2CH:CH_2$ 7 hr with 10.5 g $Ph_3P:CHCO_2Et$ in C_6H_6 gave 78% $Ph_3PCH_2CO_2Et.Br$ (I), while the filtrate, freed of C_6H_6 and taken up in EtOAc, gave in 1 day at room temp. 62.5% $Ph_3P:C(CH_2-CH:CH_2)CO_2Et$, m. 119–20°. $Ph_3P:CHCO_2Et$ and $BrCH_2-CO_2Me$ heated 4 hr in C_6H_6 gave 84% I and 80.5% $Ph_3P:C(CH_2-CO_2Me)CO_2Et$ m. 133–4°. Similar reaction of Ia with $PhICH_2I$ in hot EtOAc in the absence of moisture gave 92±3% iodide analog of I (or its methoxy analog), while the filtrate gave $Ph_3P:$-

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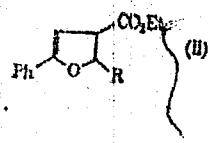
REEL/FRAME
19801363

7

AP0049511

$C(CH_2Ph)CO_2R$ (R = Me, 86%, m. 187–8°; R = Et, 84.7%, m. 143–4°). Similar reaction with acyl chlorides in C_6H_6 gave 80–98% I or its EtO analog, and 73–96% $Ph_3P{\cdot}CXCO_2R$ (X, R and m.p. shown): $PhCH_2CO$, Et, 137–8°; Bz, Et, 136–7°; *p*-$O_2NC_6H_4CO$, Me, 198.5–5–9°; 2-furoyl, Et, 112–13°. Treating the unsatd. phosphorane, Ia, and its analogs above, with phenylglyoxal (10% excess) gave Ph_3PO and $BzCH{:}CXCO_2R$ (X and R shown): H, Me, 63.7%, m. 32–3°; $PhCH_2$, Me, 89.5%, m. 62–2.5°; H, Et, 50%, b_4 147–8°, n_D^{19} 1.5490; $PhCH_2$, Et, 22%, b_3 227–9°; MeO_2CCH_2, Et, 20%, b_4 196–7°, n_D^{28} 1.5510. The last 2 esters on being distd. cyclize to 33% II (R = Ph) b_3 230–5°, m. 148–9°; and 32% II (R = CO_2Me), m. 78–9°, b_4 190–210°. The following 2,4-dinitrophenylhydrazones were prepd. from the above benzoylacrylates and dinitrophenylhydrazine in aq. H_2SO_4-EtOH and $BzCH{:}CXCO_2R$ (X, R, and m.p. shown): H, Me, 161.5–2.5°; $PhCH_2$, Me, 156–7°; H, Et, 167.5–9°; MeO_2CCH_2, Et, 166.5–7.5°.



(II)

G. M. Kosolapoff

19801364

Acc. Nr: AP0049517

Abstracting Service: CHEMICAL ABST. 5/70

Ref. Code: UR 0079

100817b Acylalkylenetriphenylphosphoranes. Ilyevchuk, M. I.; Volynskaya, E. M.; Dombrovskii, A. V. (Chernovits. Gos. Univ., Chernovtsy, USSR). *Zh. Obshch. Khim.* 1970, 40-(1), 48–57 (Russ). Heating 6.9 g $BrCH_2Ac$ and 13.5 g Ph_3P in MePh 2 hr gave 82% Ph_3PCH_2AcBr, m. 212–14°, while the filtrate gave Ph_3PO. Similar reaction of AcCHBrMe gave 66% $Ph_3PCHMeAcBr$, m. 221–2.5°, and some Ph_3PO; $BrCH_2COCH_2CMe_3$ similarly gave 82% $Ph_3PCH_2COCHMe_3Br$, m. 217–19°. Similarly were prepd. Ph_3PCHR^1CORBr (% yield, R, R^1, and m.p. shown): 80, Me, H, 234–6°; 55, CMe_3, H, 233–4°; 97, Me, Br, 127–30°; 97, Me, I, 113–15°; 99, CMe_3, Br, 105.5–7.0°; 84, CMe_3, I, 185–7°. Treating the above onium salts with EtONa in EtOH overnight gave $RCOCR^1{:}PPh_3$ (I) (R, R^1, and m.p. shown) in 65–95% yields: Me, H, 200–2°; Me, Me, 170.5–1.5°; CMe_3, H, 181–2°; Me, Cl, 162–3°; Me, Br, 144.5–6.0°; Me, I, 146–7°; Me, CNS, 148–9°; Me_3C, Cl, 114–16°; Me_3C, Br, 140–1.5°; Me_3C, I, 164.5–6°; Me_3C, CNS, 143–3.5°; Me_3C, $MeOCH_2$, 98–101°; Me, *p*-$O_2NC_6H_4CO$, 139–41°; Me, $PhCH_2CO$, 76.5–8°; Me, PhCH:CHCO, 187–9°; Me, 2-furoyl, 191–3°; Me_3C, *p*-$O_2NC_6H_4CO$, 141–3°; Me_3C, $PhCH_2CO$, 72–4°; Me_3C, PhCH:CHCO, 169–71°; Me_3C, 2-furoyl, 174–5°. I (R = Me, R^1 = Cl, Br, I, CNS) are easily interconvertible through normal ion-exchange reactions. I (R = Me or Me_3C; R^1 = H), react with acyl halides to form the analogs with R = Me or Me_3C and R^1 = acyl groups shown above, in a transacylation reaction. Thus $Ph_3P{:}CHAc$ (6.2 g) and 2.4 g Et_3N in

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19801378

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AP0049517

$CHCl_3$ at 8–10° treated 2 hr with 6 g $PhICl_2$ gave Ph_3P:CClAc described above, while bromination in CCl_4 gave the brominated analog described above; treating AcCHBrPPh$_3$Br with KOH in aq. MeOH 2.5 hr gave AcCBr:PPh_3 described above; similarly was prepd. the Me_2C analog. The iodinated analogs were also prepd. from the phosphonium salts and aq. Na_2CO_3 in Me_2NC-HO. Reactions of acyl chlorides with the unsatd. phosphoranes were run in refluxing C_6H_6 10–15 min or several hr at room temp. Me_2CCOCH:PPh_3 and $MeOCH_2Cl$ gave in EtOAc Me_2CCO-(CH_2OMe):PPh_3 identical to the above described. Adding t 3 g AcCH:PPh_3, in C_6H_6 over 20 min, 0.6 g AcCl in C_6H_6 gave in 1 hr RCO_2CR^1:$CHPPh_3Cl$(R = Me = R^1), m. 239–41°; similarly were prepd. the analogs (R, R^1, and m.p. shown: Me, CMe_2, 230–1°; Ph, Me, 96–7°; Ph, CMe_2, 92–3°. These salts with EtONa–EtOH 2–3 hr gave 100% corresponding unsatd. phosphoranes described above. Treating a slight excess of phenylglyoxal with the unsatd. acylphosphoranes gave overnight RCO-CX:CHR^1 (R, X, R^1, and m.p. shown) in 50–80% yields: Me, H, Bz, 130–1°; Me, Me, Bz, 145–7°; CMe_2, H, Bz, 150–7°. Heating the unsatd. acylphosphoranes with p-$O_2NC_6H_4CHO$ in MePh 6 hr gave the analogs (R, X R^1, and m.p. shown): Me, H, p-$O_2NC_6H_4$, 103.5–6°; Me, Me, p-$O_2NC_6H_4$, 88–91°; CMe_2, H, p-$O_2NC_6H_4$, 99–101.5°; Me, Br, p-$O_2NC_6H_4$, 96–7°; CMe_2, Br, p-$O_2NC_6H_4$, 87–9°. Uv and ir spectra are shown.

G. M. Kosolapoff

2/2

19801379

USSR

UDC 547.558.1

SHEVCHUK, M. I., KHALATURNIK, M. V., and DOMBROVSKIY, A. V., Chernovtsi State University

"Mechanism of the Formation of Phosphonium Salts. α-Alkyl-β, γ-diketophosphonium Slats and Phosphoranes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 758-763

Abstract: It has been established that α-bromoketones reacted with triphenylphosphine form initially an enolphosphonium salt and an ionic pair, eventually converting to the stable quaternary phosphonium salt. The formation of β, γ-diketophosphonium salt from bromoalkylaryl-α-diketones and triphenylphosphine goes through only one intermediate stage -- through the ionic pair. With triphenylphosphine, bromoalkylaryl-α-diketones -- Ar-CO-CO-CH(Br)-R (R= CH_3, C_2H_5, C_3H_7) -- form α-substituted β, γ-diketophosphonium bromides which upon treatment with aqueous solution of sodium carbonate convert easily to the respective β, γ-diketo-α-alkyltriphenylphosphoranes. The latter reacting via the Wittig reaction yield unsaturated polyoxo compounds.

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USSR

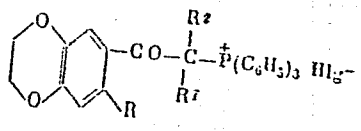
UDC 547.558.1

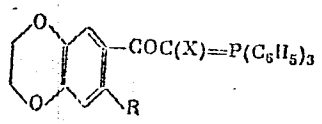
ANTONYUK, A. S., SHEVCHUK, L. I., and DOMBROVSKIY, A. V., Chernovits State University

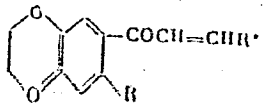
"Phosphonic Salts and Phosphoranes Containing the 6-Carbobenzodioxane. Aljylidene Radical."

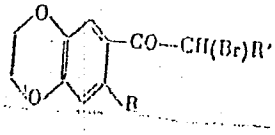
Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1706-1714

Abstract: Thirty-six compounds were prepared having one of the following general formulas:

1. 

2. 

3. 

4. 

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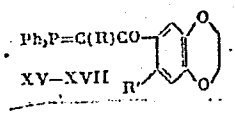
USSR

ANTONYUK, A. S., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1706-1714

Synthesis involved the reaction of Br_2 with 6-acetylbenzodioxane-1,4,6-acetyl-7-ethylbenzodioxane-1,4 and 6-propriony1benzodioxane-1,4 to form the α-bromoketone. This was reacted with triphenylphosphine to form the phosphonium salt. Reaction with C_2H_5ONa and dehydrobromination resulted in the formation of



This was the starting material from which other derivatives were prepared by reaction with $C_6H_5ICl_2$, BrI, RCOCl and others. Elemental analysis, physical data and a few UV spectra are given.

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1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EXPERIMENTAL USE OF THE RADIOISOTOPIC FOLLOW UP LEVEL GAGE UDAR-5
-U-
AUTHOR-(03)-STELMASHENKO, O.N., LITVINENKO, V.VA., SHEVCHUK, N.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (1), 54-5

DATE PUBLISHED--------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, METHODS AND EQUIPMENT

TOPIC TAGS--LIQUID LEVEL INSTRUMENT, RADIATION SOURCE, GAMMA RAY ABSORPTION, GAMMA DETECTOR/(U)UDARS LEVEL GAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1901 STEP NO--UR/0436/70/000/001/0054/0055

CIRC ACCESSION NO--AP0108231
UNCLASSIFIED

UNCLASSIFIED

2/2 017 PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108231

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTINUOUS, AUTOMATIC, CONTACTLESS MEASUREMENT AND CONTROL OF LEVELS IN LIQS. AND FREE FLOWING SOLIDS WITH AN ERROR OF PLUS OR MINUS 2 MM AND WITHOUT RISK OF FIRES AND EXPLOSIONS WAS ACHIEVED BY MEASURING DIFFERENCES IN GAMMA RAY ABSORPTION WITH THE AID OF THE LEVEL GAGE UDAR-5 WHICH HOUSED A LOW ACTIVITY GAMMA RAY SOURCE ON ONE BRANCH AND A RADIATION SENSITIVE ELEMENT ON THE OTHER BRANCH OF A VERTICAL MOVING BELT PERFORATED TO MESH WITH THE TEETH OF A SINGLE SERVO DRIVE SYSTEM.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THERMO E.M.F. OF INDIUM TELLURIUM MELTS -U-

AUTHOR-(03)-SHEVCHUK, P.P., MALINOVSKY, V.V., VELIKANOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN. KHIM. ZHUR., JAN. 1970, 36, (1), 58-60

DATE PUBLISHED----JAN70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--TELLURIUM ALLOY, METAL MELTING, INDIUM ALLOY, INTERMETALLIC COMPOUND, THERMOELECTROMOTIVE FORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1999 STEP NO--UR/0073/70/036/001/0058/0060

CIRC ACCESSION NO--AP0118958

UNCLASSIFIED

2/2 017 PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMO,E.M.F. OF PURE TE AND IN,TE MELTS OF A WIDE RANGE OF COMPOSITIONS (DOWN TO 30 AT. PERCENT TE) WAS MEASURED AT 400-900DEGREES C. MELTS WITH LOW TE CONCENTRATIONS HAD A NEGATIVE THERMO,E.M.F. OF SMALL ABS. VALUE, ALMOST INDEPENDENT OF TEMP. FOR MELTS WITH THE STOICHIOMETRIC COMPOSITION IN SUB2 TE SUB3 THE THERMO,E.M.F. BECAME POSITIVE AND REMAINED SO AS THE TE CONTENT INCREASED FURTHER. THE ABS. THERMO,E.M.F. REACHED A MAX. AT 65 AT. PERCENT TE AND THEN FELL, REACHING A MIN. FOR PURE TE.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920012-1"

1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--NONDESTRUCTIVE CONTROL OF FERRITIC MALLEABLE CAST IRON CASTINGS -U-

AUTHOR-(02)-BARYSHEVSKIY, L.M., SHEVCHUK, P.T.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 41

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--NONDESTRUCTIVE TEST, CAST IRON, TENSILE STRENGTH, METAL HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1737 STEP NO--UR/0128/70/002/000/0041/0041

CIRC ACCESSION NO--AP0118715

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118715

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO DET. THE GENERAL DEPENDENCE OF SIGMA SUBB (TENSILE STRENGTH) ON H SUBB (BRINELL HARDNESS), FERRITIC CAST IRON CONTG. C 2.5-2.7; SI 1.2-1.45; MN 0.40-0.55PERCENT; S TO 0.20, AND CR TO 0.07PERCENT WAS INVESTIGATED. THE DEPENDENCES COULD BE EXPRESSED IN THE 1ST APPROXN. AS SIGMA SUBB EQUALS H SUBB TIMES 0.2 PLUS 12; DELTA EQUALS H SUBB TIMES 0.1 PLUS 0.2, DELTA EQUALS SIGMA SUBB TIMES 0.3 PLUS 1.8 (DELTA IS ELONGATION). WHEN THE HARDNESS AND STRUCTURE OF CAST IRON ARE KNOWN, IT IS THEN POSSIBLE TO DET. ITS QUALITY.

UNCLASSIFIED

USSR

UDC: 621.396.2:621.371

SHIBAYEV, V. M., SHEVCHUK, R. M., NIKITIN, V. I.

"Experimental Investigation of Railroad Radio Communications Channels in the Case of Vertical and Horizontal Polarizations of Radio Waves in the 150 MHz Range"

Nauch. tr. Omsk. in-t inzh. zh.-d. transp. (Scientific Works. Omsk Institute of Railway Transportation Engineers), 1970, 119, pp 78-82 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A165)

Translation: It is found that the form of polarization of electromagnetic waves as they are propagated along electric railroads has no appreciable effect on signal attenuation; in the case of horizontal polarization, a signal has a narrower dynamic range of oscillations as compared with vertical polarization. The ZhR-5 receiver is taken as a basis for development of a logarithmic measuring device which can be used for automatic recording of signal and interference voltages. Resumé.

1/1

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 006

TITLE--SOLUBILITY POLYTHERM OF THE ALUMINUM SULFATE AMMONIUM SULFATE WATER TERNARY SYSTEM -U-

AUTHOR-(02)-LEBEDINSKIY, B.N., SHEVCHUK, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1432-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, SOLUBILITY, ALUMINUM SULFATE, AMMONIUM SULFATE, CHEMICAL COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0078/70/015/005/1432/1433

PROXY REEL/FRAME--3006/1398

CIRC ACCESSION NO--AP0135072

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 006

CIRC ACCESSION NO--AP0135072

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SOLY. POLYTHERM (0-100DEGREES) OF SALTS OF THE TITLE SYSTEM IS CONSTRUCTED. THE SYSTEM FORMS 3(NH SUB4) SUB2 SO SUB4 .AL SUB2 (SO SUB4) SUB3, A COMPD. WHICH HAS NOT BEEN PREVIOUSLY REPORTED.

FACILITY: POLTAV. INZH.-STROIT. INST., POLTAVA, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 006

TITLE--SYSTEM 2NACL PLUS ZNSO SUB4 FORMS AND IS FORMED BY NA SUB2 SO SUB4 PLUS ZHCL SU82-H SUB2 O AT 75DEGREES -U-

AUTHOR-(02)-MOSHINSKIY, A.S., SHEVCHUK, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1109-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SODIUM CHLORIDE, SODIUM SULFATE, SOLUBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1108 STEP NO--UR/0078/70/015/004/1109/1112

CIRC ACCESSION NO--AP0123100
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 006

CIRC ACCESSION NO--AP0123100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY, IN THE TITLE SYSTEM WAS STUDIED AND A 3 DIMENSIONAL SOLY. DIAGRAM OF THIS SYSTEM AND A SOLY. DIAGRAM OF THE BINARY SYSTEM ZNCL SUB2-ZNSO SUB4 ARE PRESENTED. THE SYSTEM HAS CRYSTN. FIELDS OF NACL, NA SUB2 SO SUB4, ZNSO SUB4 .H SUB2 O, ZHCL SUB2, MNACL.NZNCL SUB2, 3NA SUB2 SO SUB4 .ZNSO SUB4, AND 3ZNSO SUB4 .4NA SUB2 SO SUB4. THE DS. OF THESE SOLIDS ARE GIVEN.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--POLYTHERM OF SOLUBILITY AND SOLID PHASE CHARACTERISTICS OF THE RUBIDIUM SULFATE MAGNESIUM SULFATE WATER SYSTEM -U-
AUTHOR-(02)-SHEVCHUK, V.G., KOST, L.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1656-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLUBILITY, AQUEOUS SOLUTION, CRYSTALLIZATION, MAGNESIUM SULFATE, RUBIDIUM COMPOUND, PHASE COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1390 STEP NO--UR/0078/70/015/006/1656/1657

CIRC ACCESSION NO--AP0135064
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

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CIRC ACCESSION NO--AP0135064

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. ISOTHERMS AT 75 AND 100DEGREES OF RB SUB2 SO SUB4 -MGSO SUB4 -H SUB2 O SYSTEM ARE CONSTRUCTED. AT LESS THAN 50DEGREES, ONLY STARTING MATERIALS AND RB SUB2 SO SUB4 .MGSO SUB4 .6H SUB2 O (SCHOENITE) SEPD. AS SOLIDS. RB SUB2 SO SUB4 .MGSO SUB4 .4H SUB2 O AND RBSO SUB4 .2MGSO SUB4 SEPD. AT 75 AND 100DEGREES. FACILITY: POLTAV. IMZH.-STROIT. INST., POLTAV, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--LITHIUM SULFATE SULFURIC ACID WATER SYSTEM AT 25DEGREES -U-

AUTHOR-(02)-SHEVCHUK, V.G., STOROZHENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1652-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TERNARY FLUID SYSTEM, AQUEOUS SOLUTION, LITHIUM COMPOUND, SULFATE, SULFURIC ACID, CRYSTALLIZATION, SOLUBILITY, FLUID VISCOSITY, SPECIFIC DENSITY

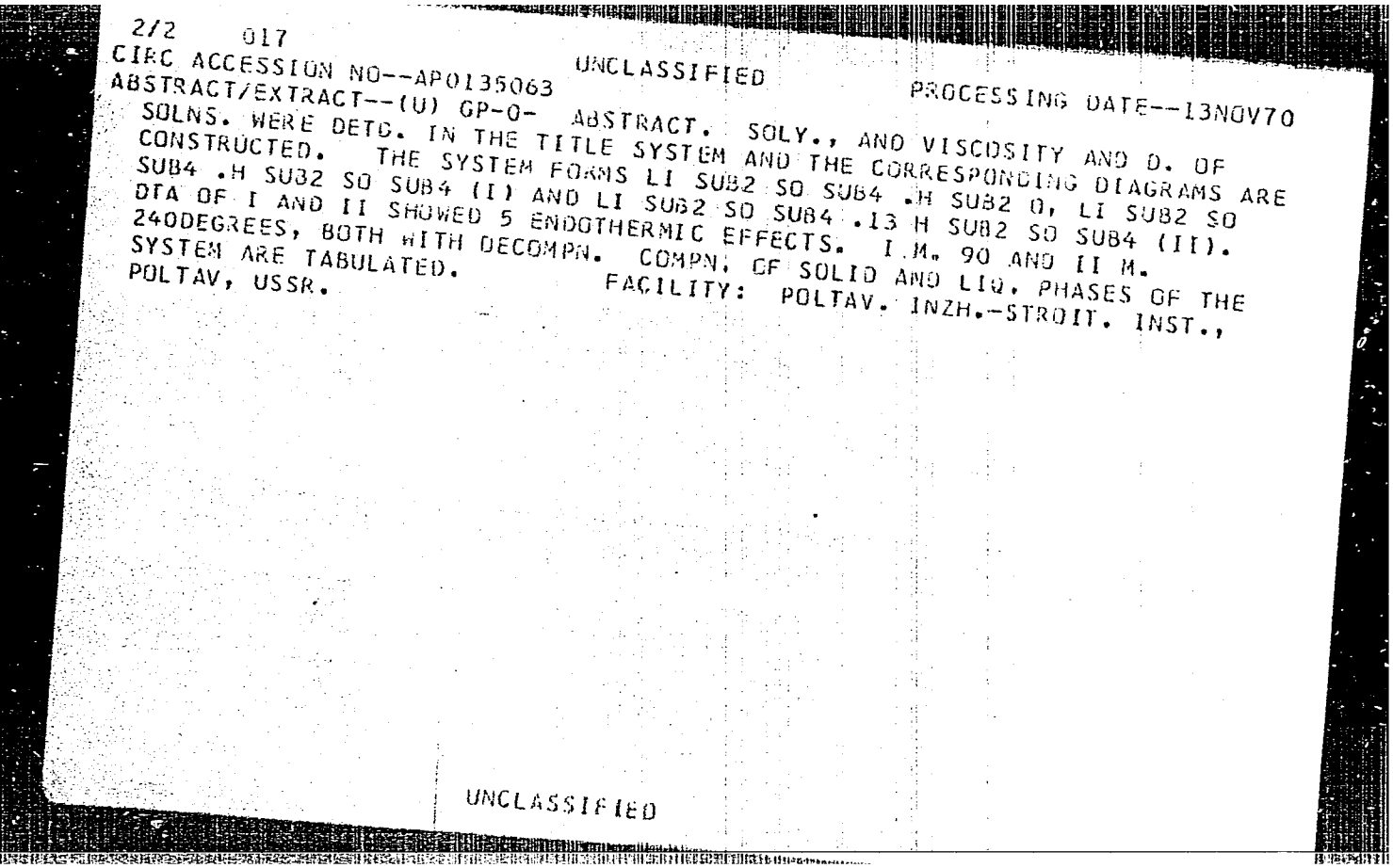
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1389 STEP NO--UR/0078/70/015/006/1652/1655

CIRC ACCESSION NO--AP0135063

UNCLASSIFIED



2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0135063
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY., AND VISCOSITY AND D. OF SOLNS. WERE DETD. IN THE TITLE SYSTEM AND THE CORRESPONDING DIAGRAMS ARE CONSTRUCTED. THE SYSTEM FORMS LI SUB2 SO SUB4 .H SUB2 O, LI SUB2 SO SUB4 .H SUB2 SO SUB4 (I) AND LI SUB2 SO SUB4 .13 H SUB2 SO SUB4 (II). DTA OF I AND II SHOWED 5 ENDOTHERMIC EFFECTS. I.M. 90 AND II M. 240DEGREES, BOTH WITH DECOMPN. COMPN; OF SOLID AND LIQ. PHASES OF THE SYSTEM ARE TABULATED. FACILITY: POLTAV. INZH.-STROIT. INST., POLTAV, USSR.

UNCLASSIFIED

Acc. Nr: AP0034080 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0078

S

18g Potassium sulfate-ammonium sulfate-zinc sulfate-water system at 25 and 75°. Shevchuk, V. G.; Pilipchenko, V. N. (Kafedra Khim., Poltav. Inzh.-Stroit. Inst., Poltava, USSR). *Zh. Neorg. Khim.* 1970, 15(1), 213–18 (Russ). At 25°, the title system has crystn. fields corresponding to $(NH_4)_2SO_4.ZnSO_4.6H_2O$, $K_2SO_4.ZnSO_4.6H_2O$, and solid solns. $nK_2SO_4.m(NH_4)_2SO_4$ and $nK_2SO_4.mZnSO_4.xH_2O$. Double salt, $K_2SO_4.2nSO_4.6H_2O$ forms limited solid solns. with the starting components of the system at 75°. A soly. diagram at 75° is constructed. HMJR

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18 di

REEL/FRAME

19710723

Acc. Nr. AP0034079 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0079

S

71190r $2NaCl + ZnSO_4 \rightarrow Na_2SO_4 + ZnCl_2$-$H_2O$ system at 25°. Shcherbak, V. G.; Moshinskii, A. S. (Kafedra Khim., Poltav. Inzh.-Stroit. Inst., Poltava, USSR). Zh. Neorg. Khim. 1970, 15(1), 219–21 (Russ). Heterogeneous equil. was studied in the title system at 25° and a solv. diagram and a 2-dimensional diagram of the system were constructed. The system has 7 fields of crystn.: mirabilite, $Na_2SO_4.ZnSO_4.4H_2O$, $ZnSO_4.7H_2O$, thenardite, halite, $ZnCl_2.2NaCl.3H_2O$, and $ZnCl_2.1.5H_2O$. Delin. of the limit of the $ZnCl_2.1.5H_2O$ crystn. field failed due to strong salting-out effect of $ZnCl_2$ on the sulfates of the system. Mirabilite has the largest crystn. field.

HMJR

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REEL/FRAME 19710722

18

USSR

Heat, Combustion, Detonation

UDC 629.7.036.54-66:536.46

VOVCHUK, YA. I., SHEVCHUK, V. G., and YAKOVLEVA, T. YA.

"Determination of the Lag Time of the Ignition of a Metal Particle in a Track Device"

Odessa, 11-ya Vses. Konf. po Vopr. Isparenlya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 -- Sbornik (11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Works), 1972, pp 33-34)(from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.150. Resume)

Translation: A method is proposed for calculating the lag time of the ignition of a spherical metal particle along the dark zone with account taken of acceleration of the particle during the motion of an entraining stream in a vertical pipe. Calculation of the ignition lag time on the basis of a known stream velocity, under the assumption that the particle instantaneously acquires the velocity of the stream, introduces a substantial degree of error. Thus, for boron particles with a diameter on the order of 50 microns, the error in determination of the ignition lag time reaches 60%. An equation of the motion of a spherical particle in a vertical stream of entraining gas if obtained, the solution of which makes it possible to obtain the relationship of the path traversed by the particle to the time. Analytic solutions are obtained for

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VOVCHUK, YA. I., et al., 11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Works), 1972, pp 33-34

cases in which the resistance forces of the medium are described by the Stokes and Oseen formulas. To solve the equation for Reynolds-number values at which the resistance of the medium is described by the Klyachko formula, a program for the M-220 electronic computer is complied. Calculation tables are obtained for the motion of boron particles, from 5 to 160 microns in size, in an entraining airstream.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--COMPARISON STUDY OF IRON FLUORIDE MATERIALS IN AIR AND VACUUM -U-

AUTHOR-(04)-ZOZULYA, V.D., MINOSHNIKOV, V.N., FEDORCHENKO, I.M., SHEVCHUK, YU.F.

COUNTRY OF INFO--USSR

SOURCE--FIZIKO-KHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, NO. 2, 1970, P. 71-74.

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CAST IRON, WEAR RESISTANCE, CALCIUM FLUORIDE, CHROMIUM CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON COMPOUND, IRON ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0060 STEP NO--UR/0369/70/006/002/0071/0074

CIRC ACCESSION NO--AP0125895

UNCLASSIFIED

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0125895 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE ANTIFRICTION PROPERTIES OF WHITE CAST IRON, AND IRON BASED MATERIALS WITH ADDITIONS OF C, CR, NI, AND CAF2. THE TESTS WERE CARRIED OUT AT A FRICTION SLIDING RATE OF 0.28 M-SEC AND PRESSURES RANGING FROM 8 TO 25 KG-SQ CM. CERTAIN TECHNIQUES FOR INCREASING THE WEAR RESISTANCE OF MATERIALS ARE EXAMINED. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT PROBLEM MATERIALOVEDENIIA, KIEV, UKRAINIAN SSR.

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USSR UDC 621.762.01(088.8)

FEDORCHENKO. I., M., MIROSHNIKOV. V. N., BORODINA, T. I., and SHEVCHUK, Yu. F.

"Compacted Metal Ceramic Material"

USSR Author's Certificate No. 268658, Filed 22/04/58, Published 9/07/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G421 P)

Translation: A compacted metal ceramic material based on Fe contains metal fluoride. In order to increase the scale resistance, Al is introduced and the components are taken in the following relationship (%): BaF_2 0.5-15, Al 0.5-25, Fe -- remainder.

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USSR

UDC 534.134

BUYVOL, V. N., SHEVCHUK, Yu. R.

"The Natural Frequency Spectrum of a System Consisting of an Elastic Plate and a Fluid"

Moscow, Gidromekhanika, No 17, 1971, p 3-8.

Abstract: A study is performed of the natural frequency spectrum of a system consisting of an elastic plate and a fluid. For a compressible fluid, triple compression of the spectrum is noted in comparison with the natural frequency spectrum of an elastic plate in a vacuum. Tables and a simple formula are presented for calculation of the free oscillating frequencies of a cantilever plate in a fluid.

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Acc. Nr: AP0045062 Abstracting Service: 5170 INTERNAT. AEROSPACE ABST. Ref. Code: UR0198

A70-23297 Oscillations of a rectangular elastic body with a rigidly clamped base (Kolebaniia priamougol'nogo uprugogo tela s zhestko zakreplennym osnovaniem). V. N. Gorchakov and Iu. R. Shevchuk (Akademiia Nauk Ukrainskoi SSR, Institut Gidromekhaniki, Kiev, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 115-119. 5 refs. In Russian.

Derivation of a difference scheme for approximately solving the problem of oscillations of a flat rectangular elastic body with mixed boundary conditions. Constraints which are required to make this scheme stable are defined. The results are applied in computer calculations of steady oscillations of a rectangular dike under given compression loads.

V.Z.

ALS

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REEL/FRAME 19771975

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USSR

UDC: 624.012:539.4

VOLKOV, YU.S. and SHEVCHUKOV, V.D.

"On Problem of Energy Absorption in Elements of Reinforced Concrete Structures"

Moscow, S.B. Dinamika Gidrotekhn. Sooruzh. (Symposium, Dynamics of Hydraulic Structures), 1972, pp 166-167 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2V882)

Translation: When calculating structures under dynamic loads, the dynamic coefficient is determined by the magnitude of the logarithmic decrement of oscillation damping Δ . The effect of the stiffness ratio of cross beam and column for frame structures and of joint stiffness on the logarithmic damping decrement was investigated. Four series of frame specimens were tested, their height was 1.5 m, cross section of columns and beams from 10x10 to 10x30 cm, span 80 cm. Oscillations were excited by impact and by a vibrator. The numerical values of Δ for the frame specimens were 0.32 to 0.38. With a rigid base the variation of cross beam to column stiffness ration by 27 times did not affect appreciably the value of Δ . With a flexible base the value of Δ was higher. Application of static load results in a decrease of Δ.

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USSR

UDC 539.4:624.012

VOLKOV, Yu. S., SHEVCHUKOV, V. D.

"Influence of Certain Factors on Attenuation of Oscillations in Reinforced Concrete Structural Elements"

Seysmostoikost' Predvaritel'no Napryazhen. Zhelezobeton. Konstruktsiy [Earthquake Resistance of Prestressed Reinforced Concrete Structures -- Collection of Works], Moscow, 1972, pp 235-244, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V943, from the Resume).

Translation: In designing a number of structures for dynamic loadings, it is important to consider the absorption of energy by the structure itself, which is determined by the logarithmic attenuation decrement of oscillations δ. The influence of the relationship of rigidities of beams and uprights for frame specimens and rigidity of attachment on the logarithmic attenuation decrement of oscillations was studied. Several series of frame (and beam) specimens were studied. On a rigid base, a change in the ratio of rigidities of beams and uprights by a factor of 27 had no significant influence on the value of δ. On a compliant base, the value of δ was higher. Application of a static load decreased the value of δ to a certain limit.
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USSR

UDC 547.759.3.07:543.422.4.25

SHEVEDOV, V. I., KURYLO, G. N., and GRINEV, A. N., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Methyl Ester of γ-Phenylacetoacetic Acid in Fisher Indole Synthesis"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1079-1082

Abstract: Methyl esters of γ-phenyl-β-hydrazinocrotonic acids substituted at the nitrogen atom form methyl esters of 3-phenylindolyl-2-acetic acids in presence of sulfuric acid, the reaction being carried out at room temperature. 2-benzylindole-3-carboxylic acid esters form only in very small amounts under these conditions. When the indolization is a carried out at 190-200°, without catalyst, the direction is reversed, benzylindole--3-carboxylic acid esters forming predominantly. When reacted with polyphosphoric acid, these compounds yield derivatives of benzo[b]carbazole, which upon oxidation produce 6,11-dioxobenzo[b] carbazoles.

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USSR

UDC: 519.1

TABARNYY, V. G., KALNIBOLOTSKIY, Yu. M., SHEVELENKO, Zh. Sh.

"Concerning a Method of Constructing a Normal Tree of a Circuit Graph"

Teor. elektrotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Theoretical Electronics. Republic Interdepartmental Scientific and Technical Collection), 1972, vyp. 14, pp 91-97 (from RZh-Kibernetika, No 5, May 73, abstract No 5V537 by the authors)

Translation: On the basis of methods of structural numbers a method is proposed for constructing normal trees of a structural circuit graph, and a description is given of their investigation for the purpose of optimum (in the given sense) construction of a system of differential equations of an electronic circuit in normal form.

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